DESIGN OF DIRECT FEED PATCH ANTENNA USING MULTILAYER LTCC TECHNOLOGY

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ABSTRACT

This paper presents the design of direct feed LTCC antenna with two feeding types operating at 1.575GHz frequency band with voltage standing wave ratio (VSWR) less than two. The feeding types chosen for this LTCC antenna design are inset feed and quarter-wave feed. These two types of direct coupled feed have been designed on the rectangular and circular LTCC antenna with Ferro A6S LTCC substrates with dielectric constant, ε_r of 5.9 and thickness, h of 0.096mm. The analysis has been made between the same patch shape with the different feeding types and vice versa. The design and simulation process for both rectangular and circular LTCC antenna have been made using CST Microwave Studio. The detail analysis of the antenna designed and simulated results of return loss, gain, bandwidth, voltage standing wave ratio (VSWR) and radiation pattern were presented and discussed. The results showed that the rectangular LTCC patch antenna with inset feed exhibit good performance characteristic compared to the circular LTCC patch antenna with inset feed for analysis of different patch shape. Furthermore, for feeding type analysis, the rectangular LTCC patch antenna with inset feed exhibit good performance characteristic compared to the rectangular LTCC antenna with quarter wave feed.

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